2. Japanese Patent Application Laid-Open No. 2-210974

(1) page 2, upper right column, line 11

<Effect>

In a still video camera constructed as described above, first of all electric charges are accumulated in an imaging device for forming an image before taking a picture, and the time interval when the accumulated charge reaches a predetermined value is measured. Then while performing calculation of each picture taking condition such as Auto Focusing (AF), Auto Exposure (AE), and Auto White Balance (AWB), the appropriate accumulation time of electric charge in the imaging device is calculated based on the measured time interval. Electric charge is accumulated in the imaging device by the calculated time, and information for focusing and light metering, which is necessary for calculating focusing and each picture taking condition, is collected.

(2) page 3, upper left column, line 3

In this embodiment, besides taking picture, in order to obtain necessary information for calculating AF, measuring aforementioned overflow time, calculating AE, and calculating AWB, a CCD2 is used for an imaging device. Switches SW1 through SW5 are devices for exchanging processing circuit for processing imaging signal obtained by the CCD2 in accordance with the aforementioned each calculation.

The switch SW1 is switched by a control signal from a CPU1 in accordance with respective processing such as calculating AF, AE, and AWB, and as taking picture, recording, and the like. Namely, while performing AF calculation, the

switch SW1 is connected to a terminal b so that imaging signals are input to an A/D converter 20 via the switches SW5 and SW3. The A/D converter 20 transforms input analogue imaging signals into digital signal and outputs to the CPU1. Moreover, while performing AE calculation, the switch SW1 is connected to a terminal c so that the aforementioned imaging signal is input to integrators 8 and 9 via switch SW2. The imaging signals integrated by the integrators 8 and 9 are input to the A/D converter 20 via the switch SW3 and input to the CPU1 after being performed A/D conversion. Furthermore, while performing AWB calculation, taking picture, or recording, the switch SW1 is connected to a terminal a so that the aforementioned imaging signal is input to a color separation circuit 16. While performing AWB calculation, a red color signal R separated by the color separation circuit 16 is directly input to an integrator 10, and a green color signal G and a blue color signal B are input to the integrators 8 and 9, respectively, via the switch SW2. After being integrated by the integrators 8 through 10 by predetermined time period, each color signal is input to the A/D converter 20 via the switch SW3, and input to the CPU1 after being performed A/D conversion. On the other hand, while taking picture or recording, respective color signals R, G, and B, as described above, are input to a matrix circuit 17, and the aforementioned brightness signal and color difference signal generated by the matrix circuit 17 are recorded in a floppy disk of a memory 18.

The switch SW2 is switched in response to a control signal from the CPU1. On calculating AE, the switch SW2 is connected to terminals c_1 and c_2, and the aforementioned

imaging signal from the CCD2 is input to the integrators 8 and 9. Further, on calculating AWB, the switch SW2 is connected to terminals d_1 and d_2, and color signals G and B separated by the color separation circuit 16 are input to the integrators 8 and 9, respectively.

The switch SW3, as same as the switches SW1 or SW2, is switched in response to a control signal from the CPU1. On calculating AF, the switch SW3 is connected to terminal h so that the imaging signal output from the switch SW5 is input to the A/D converter 20. Moreover, on calculating AE, the switch SW3 is connected to terminals e and f so that the integrated signals output from the integrators 8 and 9 are input to the A/D converter 20, respectively. Furthermore, on calculating AWB, the switch SW3 is connected to terminals e, f, and g so that the integrated signals output from the integrators 8 through 10 are input to the A/D converter 20, respectively.

The switch SW4 is for switching the connection between the color separation circuit 16 and the matrix circuit 17. For example, on calculating AWB, the connection between the color separation circuit 16 and the matrix circuit 17 is off in order to input separated color signals in the integrators 8 through 10, respectively.

The switch SW5 is controlled in response to the control signal from a switching circuit 7 on calculating AF, so that the imaging signal is output to the A/D converter 20 only when signals from pixels of CCD2 used for focus detection are output.

A counter 6 counts standard clock pulse generated from a clock generator 5 or horizontal control pulse generated

from a CCD driver 3. When the count reaches to a predetermined value input from CPU1, a control signal is output to the switching circuit 7.

The switching circuit 7 is a circuit for controlling on/off operation of the switch SW5 in response to a switch control signal input from the counter 6 and for controlling integrating operation of the integrators 8 through 10 by predetermined time intervals, respectively.

The integrators 8 through 10 are circuits for integrating imaging signals from the CCD2 by predetermined time intervals in response to the control signal from the switching circuit 7.

(3) page 4, upper-left column, line 18

Then, a method for obtaining brightness information for performing AF calculation, AE calculation, and AWB calculation by using the CCD2 will be explained.

Figs. 2 (a) through (d) are side sectional views of an optical system of a still video camera according to an embodiment of the present invention. Fig. 2 (a) shows a construction of optical system using while not performing taking a picture (hereinafter referred to as normal time). Fig. 2 (b) shows a construction of optical system using while measuring AF. Fig. 2 (c) shows a construction of optical system using while measuring AWB. Fig. 2 (d) shows a construction of optical system using while measuring overflow time, measuring AE, or taking a picture. In Fig. 2 (a), a lens A is a picture taking lens for forming an image of an object on an imaging plane of the CCD2. A lens B is a focus shift lens for shifting the image of the object to

front side of the imaging plane of the CCD2. A low-pass filter C is an optical low-pass filter for cutting off high frequency component of light. In Fig. 2 (b), an optical system D is an AF optical system. In Fig. 2 (c), a diffusing plate E is for diffusing light in order that light is uniformly incident on the imaging plane of the CCD2.